



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/546,133	04/10/2000	Claude Basso	RAL9-00-0029	2809

25299 7590 03/04/2004

IBM CORPORATION  
PO BOX 12195  
DEPT 9CCA, BLDG 002  
RESEARCH TRIANGLE PARK, NC 27709

EXAMINER

CAO, DIEM K

ART UNIT	PAPER NUMBER
----------	--------------

2126

DATE MAILED: 03/04/2004

9

Please find below and/or attached an Office communication concerning this application or proceeding.

8

## Office Action Summary

Application No.

09/546,133

Applicant(s)

BASSO ET AL.

Examiner

Diem K Cao

Art Unit

2126

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 8.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. This Office Action is in response to the Amendment filed on 12/16/2003.
2. Claims 1-20 remain in the application. Applicant has amended claims 1, 3, 7, 9, 13, and 15.

### *Drawings*

3. The drawings were received on 12/16/2003. These drawings are approved.

### *Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flory et al. (U.S. 6,009,476) in view of Chang et al. (U.S. 6,604,136 B1).
6. **As to claim 7**, Flory teaches a computer readable medium (main memory 16; col. 5, lines 47-60), program instructions on the computer readable medium for implementing a plurality of individual software components that each provides a respective one of a plurality of the device services (the shell module is loaded; col. 10, lines 20-30 and loads the requested board driver 74; col. 13, lines 54-60 and loading of the identified set of hardware interface modules; col. 15, lines 14-30), providing at least one utility interposed between the plurality of individual software

Art Unit: 2126

components and an operating system of the control system (establishment of the operating system interface objects ... are sequentially loaded into the memory; col. 19, lines 41-53 and Fig. 2 and Write\_reg and Read\_reg functions; col. 29, lines 28-40 and this platform specific call interface represent a number of utility that serve to hide platform portability details; col. 12, lines 58-67), that provides an OS independent communication interface for the plurality of individual software components (the OS object provides ... hide platform portability details; col. 12, line 58 – col. 13, line 3), in response to a receipt of a request at the system (a first API call is made by the operating system 54; col. 24, lines 51-52), first routing the request through the utility, wherein the request is translated into a code understandable by the OS and the one or the plurality of individual software components (to a corresponding operating system interface object; col. 24, lines 51-55 and each of the operating system interface object ... format and return data to the OS layer 54 in a manner appropriate for each API call supported by the object; col. 22, lines 51-61), then handling the request utilizing one of the plurality of individual software component (The shell library and hardware interface object; col. 25, lines 13-23), wherein the utility also converts all requests of various components into a specific communication type utilized by the device (each object ... may be read out; col. 29, lines 35-59).

7. However, Flory does not teach network processor, in response to a receipt of a packet at the control system, handling the packet utilizing of the plurality of individual software components by first routing the packet through the utility, wherein the packet is decoded into a common code understandable by the OS and the one of the plurality of individual software components, then handling the packet utilizing one of the plurality of individual software

Art Unit: 2126

component. Chang teaches a network processor (NP 10), loading device control module for controlling the functioning of NP 10 (device control module ... NP 10; col. 7, line 64 – col. 8, line 17), wherein the device control module and its provided API are operation system independent (DCM 74 ... host system 70; col. 8, lines 31-37), and the network processor processing the packets that it sends/receives (send or receive network data; col. 3, lines 20-32 and packets; col. 6, lines 18-29).

8. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Flory and Chang because it provides the users with a system to controlling a network processor and operating system independent.

9. **As to claim 8**, Flory teaches the loading step includes the step of loading external application programming interfaces (shell module 72, O/S API; col. 7, line 45 – col. 8, line 65 and col. 10, lines 21-30), low level APIs (board driver 74; col. 13, line 54-60, hardware interface modules; col. 15, lines 14-30). However, Flory does not teach loading physical transport interface of a device driver. Chang teaches loading physical transport interface of a device driver (function for manage physical layer; col. 8, lines 2-17). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Flory and Chang because it provides the users with method to exercise fine-grained device level control of network processor.

Art Unit: 2126

10. **As to claim 9**, Flory teaches loading a customer definable service component within the external APIs that includes a customer desired network service, which is operable within the network processor services architecture (support for a new partial API ... operating system interface module; col. 22, lines 27-46), dynamically expanding available services to include the customer definable service component on-the-fly (the revision of existing API call ... to the shell library 72'; col. 22, lines 27-46).

11. **As to claim 10**, Flory as modified teaches the providing step includes the step of providing a bi-directional connection between the utility and the operating system, one or more network processors, and each of the functional components (the O/S object provides a call interface ... platform specific functions; col. 12, lines 58-61 and each of the operating system object ... by the object; col. 22, lines 47-61).

12. **As to claim 11**, Flory teaches the providing step further comprises the step of linking a system services utility to the operating system, wherein the system services utility operates to allow each of the individual software coded components to communicate with the OS (The operating system object provides the API ... platform specific functions; col. 11, line 65 – col. 13, line 3 and upper level initialization completion; col. 19, line 11 – col. 22, line 9).

13. **As to claim 12**, Flory teaches the O/S objects carry out the conversion task, which translates all messages between the host system of the controller (each of the operating system interface object ... conversion of the operand data to a format that is unified; col. 22, lines 47 –

Art Unit: 2126

col. 23, line 6). However, Flory does not teach translate all incoming and outgoing service requests into a common network processor language to permit seamless connection and correspondence between the one or more network processors, the operating system, and each of the functional components to enable handling of network packets. Chang teaches the device control module of the network processor and the APIs provided by the control module are operation system independent. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Flory and Chang because it provides a method for a device/network processor may be used for variety of applications (col. 7, lines 48-63).

14. **As to claim 1**, see rejection of claim 7 above. Flory further teaches the one or more functional components provide the desired network processor functionality and wherein each of the plurality of functional components are independently selectable (the board driver ...hardware interface modules; col. 9, lines 33-35), and the one utility enables bi-directional communication between the network processor functionality and the OS (support a well-defined API call set ... for each API call supported by the object; col. 22, lines 47-61).

15. **As to claims 2-6**, see rejections of claims 8-12 above.

16. **As to claim 13**, Flory teaches a plurality of individual loadable functional components within a device driver of the control system that each represents a device service (the shell module is loaded; col. 10, lines 20-30 and loads the requested board driver 74; col. 13, lines 54-

Art Unit: 2126

60 and loading of the identified set of hardware interface modules; col. 15, lines 14-30), at least one utility for enabling each of the functional components to communicate with an operating system of the control system (establishment of the operating system interface objects ... are sequentially loaded into the memory; col. 19, lines 41-53 and Fig. 2 and Write\_reg and Read\_reg functions; col. 29, lines 28-40 and this platform specific call interface represent a number of utility that serve to hide platform portability details; col. 12, lines 58-67), in response to a receipt of a request at the system (a first API call is made by the operating system 54; col. 24, lines 51-52), the utility translates the request into a call of a particular one of the plurality of functional components (to a corresponding operating system interface object; col. 24, lines 51-55 and each of the operating system interface object ... format and return data to the OS layer 54 in a manner appropriate for each API call supported by the object; col. 22, lines 51-61), then handling the request utilizing one of the plurality of individual software component (The shell library and hardware interface object; col. 25, lines 13-23), the utility is located within lower level APIs (within a device driver), wherein the utility also converts all requests of various components into a specific communication type utilized by the device (each object ... may be read out; col. 29, lines 35-59), and processing hardware that executes code of the OS, the utility and the functional components (the computer system includes and central processing unit; col. 5, lines 47-60).

17. However, Flory does not teach network processor, and the utility is communicatively coupled to external API, OS, software stack, and a network processor resource services. Chang teaches a network processor (NP 10), loading device control module for controlling the functioning of NP 10 (device control module ... NP 10; col. 7, line 64 – col. 8, line 17), wherein



Art Unit: 2126

the device control module and its provided API are operation system independent (DCM 74 ... host system 70; col. 8, lines 31-37), and the network processor processing the packets that it sends/receives (send or receive network data; col. 3, lines 20-32 and packets; col. 6, lines 18-29), the encode/decode module couples to software protocol stack (col. 9, line 65- col. 10, line 10) and is operating system independent (col. 8, lines 31-37).

18. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Flory and Chang because it provides the users with a system to controlling a network processor and operating system independent.

19. **As to claim 14**, see rejection of claim 8 above.

20. **As to claims 15-17**, see rejections of claims 3, and 5-6 above.

21. **As to claim 18**, it corresponds to the computer product of claim 7 and is rejected under the same ground of injection.

22. **As to claim 19**, although Chang does not teach a switch fabric couple to the one or more network processors, it would be obvious to one of ordinary skill in the art, switch fabric is utilized in the system to connect to the network processor.

23. **As to claim 20**, see rejections of claims 8, 10 and 11 above.

***Response to Arguments***

24. Applicant's arguments filed 12/16 /2003 have been fully considered but they are not persuasive.

As to Applicant's arguments regarding the combination of Flory and Chang does not teach all the limitations of claim 1, examiner respectfully disagrees because some of the limitations are newly added and also taught by the combination of Flory and Chang as set forth in the rejection of claim 1 above.

As to Applicant's arguments regarding there is no motivation to combine the teaching of Flory and Change, examiner respectfully disagree because Flory teaches the device driver in the computer system in general, and Chang teaches the device driver for the network processor resides in the computer system. One of ordinary skill in the art would be motivated to apply the teaching of Flory to the system of Chang or vice versa to improve the system of Flory or Chang.

***Conclusion***

25. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

Art Unit: 2126

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Diem K Cao whose telephone number is (703) 305-5220. The examiner can normally be reached on Monday - Thursday, 9:00AM - 5:00PM.

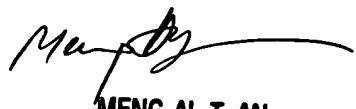
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (703) 305-9678. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**Any response to this action should be mailed to:**

Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

Diem Cao

  
**MENG-AL T. AN**  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100